DEMONSTRATION OF A PROPOSITION (*SEE QUERY, P.* 55).

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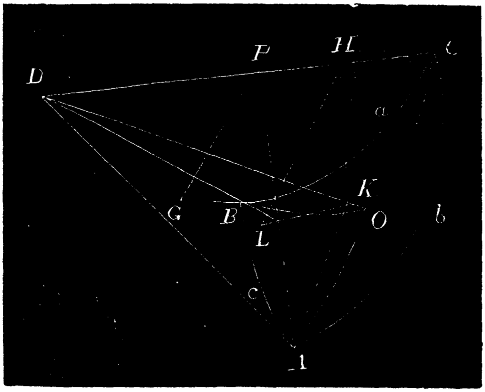
Let ABC represent the triangle. Draw AP perpendicular to CD, the radius of the sphere. In the plane DBC, perpendicular to CD. draw PG $=$ sine of BC.



Then twice the area of APG. the orthographic projection of the plane triangle ABC upon the plane through A perpendicular to CD, $=\sin a \sin b \sin C$ and likewise the projections of the plane triangle ABC upon planes through B and C, perpendicular to DB and DA are $\sin a \sin c \sin B$, $\sin b \sin c \sin A$, which projections are equal, being upon planes equally inclined to the plane ABC.

Also, $\sin AO \sin BO \sin AOB$ is twice the projection of the plane triangle AOB upon a plane perpendicular to OD, the inclination of which plane to APG is the arc OC. Hence the projection of $\sin AO \sin BO \sin AOB$ upon APG is $\sin AO \sin BO \sin AOB \cos OC$.

Through A, draw AK, the sine of AO, KH perpendicular to CD, and HL parallel and equal to PG; then the triangle LKH is the projection of the plane triangle OBC upon a plane perpendicular to CD, and $LH \times HK \times \sin C = \sin a \cos AO \sin CO \sin C = \sin BO \sin CO \sin BOC \cos AO$.

In like manner the projection of the plane triangle AOC upon a plane perpendicular to CD is equal to $\sin AO \sin CO \sin AOC \cos BO$. Hence $\sin a \sin b \sin C = \sin a \sin c \sin B = \sin b \sin c \sin A = \sin AO \sin BO \times \sin AOB \cos CO + \sin BO \sin CO \sin BOC \cos AO + \sin AO \sin CO \sin AOC \cos BO = \sin AO \sin BO \sin CO (\cot AO \sin BOC + \cot BO \sin AOC + \cot CO \sin AOB)$.

NOTE ON THE SOLUTION OF PROBLEM 260, BY THE EDITOR.—In the solution of this problem (pp. 121–22), the equations from Routh were incorrectly written, and should be corrected as follows: In (1), for —, read +, and in (2), for "sin", read cos; also, in (3), for "cos" read sin.

By introducing these corrections in the solution at p. 121 we get